

The Mosque-Swallows usually arrive in large flocks early in March, but a few have been seen as early as January. They leave again between the middle of September and the end of October, but some linger on into November and December, the latest date being the 22nd of the last-named month.

Possibly these very late birds are those which have nested only a little further north. Prior to migration they settle in vast numbers on telegraph-wires and other suitable perching-places in the same manner as the other Swallows.

Building begins at the end of April, and nests containing eggs in all stages of incubation, and in a few cases young birds, were found on June 3rd.

Eggs vary in length from $\cdot 85$ to $\cdot 69$ and in breadth from $\cdot 62$ to $\cdot 58$; they average $\cdot 77 \times \cdot 60$.

[To be continued.]

V.—*Notes on the Birds collected by the B.O.U. Expedition to Dutch New Guinea.* By W. R. OGILVIE-GRANT, F.Z.S., M.B.O.U.

THE following account of the birds brought home from New Guinea by the B.O.U. Expedition has been reprinted, by the kind permission of Messrs. Smith, Elder & Co., from the Appendix A to Mr. A. F. R. Wollaston's volume, 'Pygmies and Papuans,' which contains the official account of the Expedition. As it was thought that this account might not come under the notice of all the Members of the Union, it has been considered advisable by the Editor to reproduce it in the 'Ibis' with a few additional notes and slight alterations. When Mr. Wollaston, who is accompanied by Mr. C. Boden Kloss and five trained Dyaks, returns with large additional collections from the second Expedition, it is intended to draw up a complete account

of the birds for the information of the Members of the B. O. U. and the other subscribers towards the expenses of the Expedition.

Our knowledge of the Birds of New Guinea is based mainly on Count T. Salvadori's monumental work '*Ornitologia della Papuasia e delle Molluche*,' which appeared in three large volumes in 1880-82, and on his '*Aggiunte*' to the above work published in three parts in 1889-91. Since that date our knowledge of the avifauna has vastly increased, and a very large number of splendid Birds-of-Paradise and other remarkable new species have been discovered.

A list of the principal works subsequently published, placed in chronological order, will be found at the end of this article, the most important papers being no doubt those by the Hon. Walter Rothschild and Dr. E. Hartert, which have appeared from time to time in the *Tring Museum periodical*, '*Novitates Zoologicae*.' Mr. Rothschild is to be congratulated on the success which has attended the efforts of his various collectors in New Guinea, and on the energy which he has displayed in obtaining birds from the unknown districts of the most interesting island in the world.

To give in a single chapter a brief and partly scientific, partly popular, summary of the ornithological work accomplished by our Expedition in Dutch New Guinea is a more difficult task than might be imagined, for there is not only an immense number of species to be dealt with, but in most instances very little is known about their habits. The jungles of South-western New Guinea are so dense that white men can scarcely traverse them, and most of the collecting had to be done by the trained natives from the Malay Peninsula, kindly supplied by Mr. H. C. Robinson, and by the Gurkhas who accompanied the Expedition.

By dealing with each family in turn, I shall endeavour to refer to all the more important species in the collection in their proper scientific order, briefly describing some of the

more beautiful, so that those without any special knowledge of birds may, if they care to do so, form some idea of the marvellous types which have been brought home from the interior of South-western New Guinea.

It is certain that the resources of that wonderful island are not nearly exhausted: on the contrary, every fresh collecting expedition sent to the interior produces remarkable novelties, and large chains of high mountains are still unexplored. The members of our Expedition were fortunate in procuring no less than 2200 skins of birds in New Guinea, representing about 235 species, of which ten proved to be new to science. A number of new birds were also obtained by the late Mr. Wilfred Stalker in the mountains of Ceram, which he visited before joining the main Expedition at Amboina. His premature death by drowning, a few days after he landed in New Guinea, was an immense loss to the Expedition, though his place was ably filled by Mr. Claude Grant, who worked with his characteristic zeal and enthusiasm.

It will be noticed that the great bulk of the birds inhabiting New Guinea belong to a comparatively small number of families, but that each of these is represented by a large number of different species, especially in such groups as the Pigeons, Parrots, Flycatchers, and Honey-eaters.

Amongst the Pigeons, of which no fewer than twenty-seven different kinds were obtained, it would seem as though, in some instances at least, Nature had almost come to the end of her resources in devising new and wonderful arrangements of colour and markings; for in some of the smaller Fruit-Pigeons, such as *Ptilopus gestroi* and *P. zonorus*, we find two perfectly distinct species, occurring side by side, possessing almost exactly the same remarkable scheme of coloration, and only differing in certain minor points to be found in the markings of the wing-coverts. Another very similar instance is to be seen in *Ptilopus coronulatus* and *P. nanus*, almost the same colours and pattern being repeated in both.

The collection obtained by our Expedition is a very

valuable one, and has added many new and interesting forms of bird-life to the incomparable series in the Natural History Museum, to which the bulk of the specimens have been presented by the subscribers. A large proportion of the birds were obtained at low elevations from sea-level to 2000 feet, only a comparatively small number being procured at from 3000-4000 feet. It is to be regretted that the immense physical difficulties encountered and other causes prevented our collectors from reaching a higher zone between 5000 and 10,000 feet, where no doubt much of interest remains to be discovered by those who are fortunate enough to get there.

TABLE SHOWING THE NUMBER OF SPECIES REPRESENTED AND THE FAMILIES TO WHICH THEY BELONG.

Family.		No. of Species.
<i>Corvidæ</i>	Crows	2
<i>Paradisæidæ</i>	Birds-of-Paradise, Bower-Birds, and Manucodes .	13
<i>Eulabetidæ</i>	Tree-Starlings	4
<i>Dicruridæ</i>	Drongos	2
<i>Oriolidæ</i>	Orioles	1
<i>Ploceidæ</i>	Weaver-Finches	1
<i>Motacillidæ</i>	Wagtails	2
<i>Meliphagidæ</i>	Honey-eaters	26
<i>Nectariniidæ</i>	Sun-birds	2
<i>Dicaeidæ</i>	Flower-peckers	2
<i>Zosteropidæ</i>	White-eyes	1
<i>Laniidæ</i>	Shrikes	8
<i>Prionopidæ</i>	Wood-Shrikes	4
<i>Artamidæ</i>	Swallow-Shrikes	1
<i>Timelidæ</i>	Babblers	4
<i>Campophagidæ</i>	Cuckoo-Shrikes	11
<i>Muscicapidæ</i>	Flycatchers	30
<i>Hirundinidæ</i>	Swallows	2
<i>Pittidæ</i>	Pittas or Ant-Thrushes	2
<i>Cuculidæ</i>	Cuckoos	11
<i>Cypselidæ</i>	Swifts	4
<i>Caprimulgidæ</i>	Nightjars	2
<i>Podargidæ</i>	Frog-mouths	3
<i>Bucerotidæ</i>	Hornbills	1
<i>Meropidæ</i>	Bee-eaters	1
<i>Coraciidæ</i>	Rollers	2

Family.		No. of Species.
<i>Alcedinidæ</i>	Kingfishers	11
<i>Psittacidæ</i>	Parrots	22
<i>Loriidæ</i>	Lories or Brush-tongued Parrots }	
<i>Bubonidæ</i>	Horned and Wood-Owls	1
<i>Falconidæ</i>	Eagles and Hawks	7
<i>Phalacrocoracidæ</i>	Cormorants	1
<i>Anatidæ</i>	Ducks	2
<i>Ibididæ</i>	Ibises	1
<i>Ardeidæ</i>	Hérons	4
<i>Ædicnemidæ</i>	Stone-Plovers	1
<i>Charadriidæ</i>	Plovers	8
<i>Laridæ</i>	Gulls and Terns	2
<i>Rallidæ</i>	Pails	1
<i>Columbidæ</i>	Pigeons.....	26
<i>Megapodiidæ</i>	Megapodes or Mound-builders	3
<i>Casuariidæ</i>	Cassowaries	3
Total		235

From this table it will be seen that out of 235 species procured, 150 are included in eight of the families: viz. Birds-of-Paradise, 13; Honey-eaters, 26; Cuckoo-Shrikes, 11; Flycatchers, 30; Cuckoos, 11; Kingfishers, 11; Parrots, 22; Pigeons, 26.

Family CORVIDÆ—Crows.

Though the true Crows are never brightly coloured birds, many are extremely handsome, but this epithet cannot be applied to the Bare-faced Crow (*Gymnocorax senex*), which is common on the Mimika River and distributed over New Guinea generally.

The adult is brownish-black with a slight purplish or bluish gloss on the wings, but is generally in worn and shabby plumage. Even when freshly moulted it is rather a disreputable-looking bird, its naked pink face, pale watery blue eyes, slate-coloured bill, and livid feet adding to its dissipated appearance. Young birds in their first year's plumage are even plainer than their parents, being dull drab-brown inclining to brownish-white on the head and neck. They have a weak uncrow-like call pitched in a high key, and their flight is feeble and seldom sustained.

In addition to this Crow of unprepossessing appearance, there is a handsome Raven (*Corvus orru*), much like our familiar bird but smaller, which was met with in pairs on the coast.

Family PARADISEIDE—*Birds-of-Paradise and Bower-Birds.*

Closely allied to the well-known Greater Bird-of-Paradise (*Paradisea apoda*) from the Aru Islands is the New Guinea form *P. nova-guineæ*, the males being distinguished by their smaller size and by having the long ornamental side-plumes of a much richer orange-yellow. Though the call of this bird was frequently heard on the upper parts of the Mimika, it was rarely seen; but on the Wataikwa quite a number were procured in all stages of plumage. The species was, however, nowhere plentiful and is confined to the foot-hills.

The Pygmies often brought plumes of the Lesser Bird-of-Paradise (*P. minor*) to Parimau and traded them with the natives, but the species was not found on the Mimika, the Charles Louis Mountains probably forming its southern boundary.

My account of the display of that species, as witnessed in the Zoological Society's Gardens, Regent's Park, will be found in 'The Ibis,' 1905, p. 429, accompanied by various drawings and a coloured plate by Mr. G. E. Lodge. The display resembles that of the Greater Bird-of-Paradise (*P. apoda*) and the Red Bird-of-Paradise (*P. raggiana*), and no doubt also that of *P. nova-guineæ*. It is a wonderful and beautiful sight to see these birds erect their splendid side-plumes in an arch over the back, which is concealed in a shivering cascade of colour, orange and white, or red according to the species.

Numbers of the beautiful little King Bird-of-Paradise (*Cicinnurus regius*) were brought home in all stages of plumage from the young to the fully adult male, with its scarlet head, shading into glittering carmine on the back and wings and into purplish-carmine on the throat, which is bordered below by a rich dark green band. The sides of the chest are ornamented with fan-like arrangements of grey feathers tipped with glittering golden-green; the breast and

the rest of the underparts are of the purest white: the outer tail-feathers are earthy-brown edged with orange-red, while the middle pair, which cross one another, have the bare shafts enormously lengthened, and terminate in a tightly curled disc, golden-green above and reddish-brown beneath.

These beautiful ornaments are seen to the greatest advantage when the King is displaying, the green-tipped fan-like feathers on the sides and the white feathers of the breast being spread out to form a circular shield in front of the bird, while the green metallic discs of the long middle tail-feathers are erected and waved overhead. An excellent description of the display of this species is given by Sir William Ingram in 'The Ibis,' 1907, p. 225, with a coloured plate and figures drawn by Mr. G. E. Lodge from a living specimen.

Mr. Walter Goodfellow made an interesting observation on the habits of this species. While watching some Pigeons on the opposite bank of the river through his glasses he saw a small bird rise from the top of a tree and soar into the air like a Sky-Lark. After it had risen about thirty feet, it suddenly seemed to collapse, and dropped back into the tree as though it had been shot. It proved to be a King Bird-of-Paradise, and probably this soaring habit is a part of the display not indulged in by captive birds confined in comparatively small cages.

A Rifle-Bird (*Ptiloris magnifica*) was fairly common, both on the coast and near the mountains, and its call, consisting of two long-drawn notes—one ascending, the other descending,—might be heard at all hours of the day. Its plumage is mostly velvety black on the head and upper-parts, but the crown, middle of the throat and chest, as well as the middle pair of tail-feathers, are metallic blue, and a bronze-green band separates the chest from the deep purplish-maroon under-parts. The outer flight-feathers are curiously pointed and strongly falcate, and some of the side-feathers terminate in long, narrow, decomposed plumes. The long, curved bill and the legs are black, while the inside of the mouth is pale

apple-green, as is the case with several other species of Paradise-Birds.

Though a well-known species, we must not omit to mention the splendid Twelve-wired Bird-of-Paradise (*Selenicides niger*). The plumage of the male is like dark brown plush, shot with bronze-green on the back and deep violet on the wings, while the long dark breast-feathers are edged with rich metallic emerald-green. The long ornamental side-plumes and the rest of the under-parts are of a beautiful bright cinnamon-yellow when freshly moulted, but this colour is so volatile that it fades to nearly white in skins which have been kept for a few years. The shafts of six of the long side-plumes on either side extend far beyond the vane of the feather and look like twelve recurved wires, hence the bird's popular name. The eye is crimson, the bill black, the gape bright apple-green, and the legs and toes yellowish flesh-colour.

The Expedition procured three examples of a new form of *Parotia* or Six-plumed Paradise-Bird on the Iwaka River, but unfortunately did not succeed in shooting a fully adult male. Simultaneously A. S. Meek, who was collecting for Mr. Rothschild, procured specimens of the same bird on the Oetakwa River a few miles to the east, but he likewise did not secure the fully adult male. The species has been named *Parotia carolæ meeki* by Mr. Rothschild*.

The plumage of this bird is like brownish-black plush and equally soft to the touch. The head is ornamented very wonderfully; on either side behind the eye there are three long racket-like plumes on long bare shafts (a character common to all the members of this remarkable genus of Paradise-Birds): the middle of the crown is of a beautiful "old" gold colour in a setting of silvery-white and golden-brown: on the occiput there is a marvellous patch of stiff metal-like feathers, golden-green bordered with deep violet; the sides of the head before and behind the eye are golden-

* On his second trip Mr. Meek procured adult male examples. Cf. Bull. B. O. C. xxix. p. 118 (1912).

brown, the chin and upper part of the throat deep brown, and the lower part whitish spotted with rufous. A lovely metallic breast-plate of bronze-green and violet feathers with dark middles covers the chest, and the long flank-feathers are white. The two outer flight-feathers are curiously attenuated near the extremity, and terminate in a sharp point, the shaft bearing only a very narrow web. No doubt all these ornaments are displayed in a similar manner to those of *P. lawesi* from British New Guinea, males of which have been living for some years in the Zoological Society's Gardens, Regent's Park.

Another very handsome species is the Golden-winged *Diphyllodes chrysoptera*. The male has the bill and a bare space behind the eye bluish-white, the inside of the mouth apple-green, and the feet Prussian-blue. The head is clad in short velvety reddish-brown feathers with two metallic-green spots between the eyes; the nape bears a frill of rather long brown-tipped plumes; the mantle is light golden-yellow like spun glass, and forms a lengthened tippet; the inner secondary-quills and shoulder-feathers are orange-yellow, and the back carmine and dull orange shading into sooty black on the upper tail-coverts. The throat is deep velvety brown, the neck and breast rich dark green bordered below with metallic bluish-green, and with a row of metallic-green bars like steps down the middle of the neck and chest; the rest of the under-parts are black. The short outer tail-feathers are sooty brown, while the middle pair, which cross one another, are very long and narrow and of a metallic-bluish-green. The female is very soberly clad, dull brown above and narrowly barred with brown and buff below.

The Bower-Birds have received their name from their peculiar habit of constructing bowers or runs where the males meet to play or to pay their court to the females. The bowers are built long before the birds begin to build their nests, which are placed in trees.

One of the most noteworthy species procured by the Expedition was the gorgeously coloured Bower-Bird,

Xanthomelas ardens [O.-Grant, Bull. B. O. C. xxvii. p. 66 (1911)]. The male has the eye yellow and the head, sides of the neck, and mantle orange-scarlet, the feathers of the latter being very long and loose and forming a dense cape; the rest of the plumage is orange-yellow above and golden-yellow below: the ends of the quills and the tail-feathers being black.

The female has the iris brown and is more sombrely clad, the head and upper-parts, including the wings and tail, being earthy-brown, while the under-parts, under wing-coverts, and wing-lining are yellow, like those of the male, but less bright.

This beautiful species was originally described from an imperfect native-made skin, obtained by the Italian naturalist, D'Albertis, on the Fly River. Subsequently Dr. H. A. Lorentz shot two adult males on the Noord River, which were described and figured by Dr. Van Oort. Our expedition was fortunate enough to secure not only adult males, but also the immature male and adult female, these latter being hitherto unknown.

The display of the male bird must be a very beautiful sight, his scarlet cape being no doubt erected and forming a great hood over the head.

Among the Bower-Birds, one of the most interesting was a remarkable female example of a species of *Chlamysodera* procured on the Kamura River. Unlike any of the allied forms, it has the under-surface washed with yellow, and appears to be the female of *C. lauterbachi*, of which the brilliantly coloured male was described and figured by Dr. Reichenow from an example procured in German New Guinea [cf. Orn. Monatsb. v. p. 24 (1897); & Journ. für Orn. 1897, p. 215, pl. vi.].

The male has the crown and sides of the face golden-orange, the upper-parts olive-brown, edged with yellowish, and the under-parts bright yellow. It is a very striking bird, and much the most brightly coloured member of the genus.

Though the two specimens were obtained in localities so

far apart, there seems to be no reason why they should not be male and female of the same species. The female obtained by the Expedition possesses many characteristics in common with the male type of *C. lauterbachii*, and the differences in plumage are just what one would expect to find in the female of that species.

The beautiful Cat-bird (*Ælurædus stonei*) was fairly plentiful, and is remarkable on account of its peculiar colouring. The cap is brown, the back grass-green, and the neck and under-parts buff, spotted with black, or green on the longer flank-feathers. The eye is hazel and the bill and legs slate-blue. The sexes are alike in plumage. It derives its popular name from its peculiar hissing alarm-note, not unlike the sound made by an angry cat.

Of the Manucodes, four different kinds were met with. They are all Crow-like birds with brilliant metallic-black plumage glossed with purple, green, or blue, and form a link between the Paradise-Birds and the true Crows. The Purple-and-Violet Manucode (*Phonygama jamesi*) is distinguished by possessing tufts of long, narrow, metallic-green plumes behind the eye, and by having the neck-feathers similarly lengthened; while the other three belonging to the genus *Manucodia* have the head and neck covered with short curly feathers. These curly-headed species are much alike in general appearance, but *M. orientalis* has the short curly feathers on the chest and breast glittering golden-green, while in *M. jobiensis* and *M. altera* the same parts are dark steel-blue. *Inter se* the two latter kinds differ considerably, both structurally and in colour. *M. jobiensis* is smaller and has the feathers of the throat rounded and crinkled, and the upper-parts glossed with a strong shade of violet; while *M. altera* is larger and has the throat-feathers short but rather pointed, and the general colour above purplish-blue or steel-blue.

In most of the Manucodes the trachea is very long and convoluted, that of the Purple-and-Violet species possessing no fewer than twelve coils which lie between the skin and the pectoral muscles. In spite of this marvellous instrument

its cries are not nearly so loud as those of the Birds-of-Paradise of the genus *Paradisea*.

Mr. Claude Grant discovered a nest of *M. altera* with two eggs at Parimau, an interesting find, as no properly authenticated eggs of that species had previously been obtained.

Family EULABETIDÆ—*Tree-Starlings*.

Among the smaller Glossy Starlings we must specially mention a new species, *Calornis mystacea* [O.-Grant, Bull. B. O. C. xxix. p. 28 (1911)], discovered by the Expedition. It has the plumage purplish-bronze and is especially remarkable in having long semi-erect plumes on the forehead as well as long neck-hackles. Three specimens were obtained flying in company with large flocks of *C. metallica*, a rather widely distributed species, which ranges to North Australia, the Moluccas, and the Solomon Islands.

The Grackles or Talking-Starlings are represented by two lovely species, the first being the well-known Dumont's Grackle (*Mino dumonti*), a dark glossy greenish-black bird with a yellow belly and white under tail-coverts. It has a brown eye surrounded by a large naked orange patch partially covered with short stiff filaments. The second species, Robertson's Golden Grackle (*Melanopyrrhus robertsoni*), is an equally handsome, but much rarer bird, and the fine series of adults obtained by the Expedition proves that it is a species quite distinct from *M. orientalis*, the form found in British New Guinea, which has a large black patch on the occiput.

Robertson's Grackle has the cheeks and upper part of the throat, as well as the back, wings and breast, black glossed with green; the rest of the head, neck and chest, as well as the lower back, rump, upper tail-coverts and belly, are orange-yellow. In the adult there is no trace of a black patch on the occiput, but the quite young bird has the entire crown black, and specimens which have not assumed the fully adult plumage and still retain some black feathers on the occiput might be mistaken for *M. orientalis*.

That they have been so mistaken is proved by the fact that Count Salvadori and many others have regarded *M. robertsoni* Sharpe as a synonymus of *M. orientalis* Schlegel, but they are really quite distinct species.

A few high trees left standing near the huts at Wakatimi were the resort, morning and evening, of these Starlings and various other species of birds. For a long time during the hot mid-day hours Mr. Goodfellow had observed that some bird, possessing a remarkably sweet Thrush-like song, rested there, and, after many days of watching, he found it to be Robertson's Golden Grackle. He says that the notes of this Starling would not pass unnoticed, even in countries where the birds, as a rule, have sweeter voices than those inhabiting New Guinea.

Family DICRURIDÆ—*Drongos*.

The Drongos, small Crow-like Flycatchers with pugnacious habits, are represented in the collection by two species—*Chibia carbonaria* and *Chætorhynchus papuensis*.

Family ORIOLIDÆ—*Orioles*.

The Orioles are represented by one species only, *Mimeta striata*, belonging to the dull coloured brown-backed group with heavily streaked under-parts and the sexes alike in plumage. It was commonest in the mangrove-swamps near the coast.

Family PLOCEIDÆ—*Weaver-birds*.

This widely distributed group is not very numerous in New Guinea, and the only representative met with was a small species, *Munia tristissima*, which was common in the clearing round the camp at Wakatimi.

Family MOTACILLIDÆ—*Wagtails*.

The Grey Wagtail (*Motacilla melanope*) and the Blue-headed Wagtail (*M. flava*) were both met with on the Mimika and other rivers. It is interesting to note that

both species are included in the British List, the former being a regular breeding-species in our islands. The birds wintering in far-off New Guinea no doubt formed part of the eastern colonies of these species which nest in Siberia and visit the Indo-Malayan Islands in winter.

Family MELIPHAGIDÆ—*Honey-eaters*.

The Honey-eaters are very numerous represented in South-western New Guinea, and no fewer than twenty-seven species were met with by our Expedition.

The family is divided into two sections, the first including the comparatively brightly coloured genus *Myzomela*, the members of which resemble true Sun-birds (*Nectariniidæ*) in general appearance. Seven species were met with, the most brilliantly coloured being *M. cruentata*, which has the plumage of the body scarlet and the wings washed with the same colour; another species, *M. obscura*, has the entire plumage smoky-grey; and four forms are intermediate between these two types of coloration, being partly scarlet and partly grey. The seventh is a very small and very rare species (*Ædistoma pygmaeum*), which was described by Count Salvadori from the Arfak Peninsula.

The other section contains a number of larger species, mostly with dull greenish or brownish plumage, and nearly all with a yellow tuft or patch on the ear-coverts. Though rather uninteresting-looking birds several are really of great scientific value, being new to the National Collection, and one, *Ptilotis mimikæ* [O.-Grant, Bull. B. O. C. xxix. p. 27 (1911)], has proved to be new to Science. The largest form is the curious Friar-bird (*Philemon novæ-guinææ*), with the bare sides of the face and neck black and a swollen knob on the base of the bill. It was generally met with in pairs, and inhabited the tops of the tallest forest-trees, whence its peculiar cry might constantly be heard.

Family NECTARINIIDÆ—*Sun-birds*.

The Sun-birds are represented by two species, *Cinnyris aspasie* and *C. frenata*. The male of the former is deep

black with a dark metallic-green cap, shoulders and lower back, and purple throat; while the female is olive above and dull yellow below, with a grey head and throat. The latter species is dull yellow above, brilliant yellow below, with a purple throat in the male, which is absent in the female.

Mr. Goodfellow tells us that among the riot of parasitic plants which covered the trees a few Sun-birds and Honey-eaters might always be seen. The nests of the former, suspended from fallen and partially submerged dead trees, were continuously swinging from side to side, the strong current in the river keeping the trees in perpetual motion. These nests might easily be mistaken for a handful of drift left there by the river.

Family DICÆIDÆ—*Flower-peckers.*

Dicæum diversum and *Melanocharis chloroptera*, a dull-looking greenish-grey species described by Count Salvadori, were the only Flower-peckers met with. They are small Tit-like birds allied to the Sun-birds, but with a short bill serrated along the edges of the mandibles. Both species were very common everywhere, except on the coast, and were extremely tame.

Family ZOSTEROPIDÆ—*White-eyes.*

Zosterops chrysolæma, a beautiful little species with the upper-parts golden-olive, the throat and under tail-coverts yellow, and the breast and belly pure white, was the only species met with of this most numerous and widely distributed group. The popular name White-eye is derived from the ring of tiny white plumes which encircles the eye in all. They resemble Titmice both in their mode of life and notes. The only pair observed was met with on the Iwaka River, and the species is probably more numerous in the higher parts of the mountains.

Family LANIIDÆ—*Shrikes.*

The large Shrike-like birds with powerful hooked bills known as the Piping-Crows are represented by two members

of the genus *Cracticus*: *C. cassicus*, a black and white species, and *C. quoyi*, with uniform black plumage. Both are much like their well-known Australian representatives, but smaller. *C. cassicus* was much the commoner bird, and was generally observed feeding on berries and fruits in high trees, its actions being very Crow-like.

The Pachycephaline group of birds allied to the true Shrikes is represented by half-a-dozen species, two of which proved to be undescribed: a grey form with a white throat, *Pachycephala approximans*, and a black species with a white breast and belly, *P. dorsalis* [O.-Grant, Bull. B. O. C. xxix. p. 26 (1911)]. Brilliantly coloured orange-yellow and black, or orange-yellow and grey, species are represented by *Pachycephala aurea* and *Pachychare flavogrisea*.

Family PRIONOPIDÆ—Wood-Shrikes.

This group is represented by *Rhectes cristatus* and *R. ferrugineus* in which both sexes are rufous, and by *R. nigripectus* with the sexes different, the male being partly black and partly chestnut. *Pinarolestes megarhynchus*, an allied species with the sexes alike, is brown above and dull rufous below. Some of these Wood-Shrikes lay peculiar-looking eggs of a long oval shape and large for the size of the bird. The ground-colour is purplish- or pinkish-grey with scattered spots or small blotches of dark purplish-brown or maroon-brown, often blurred at the edges and running into the ground-colour. These eggs have on several occasions been palmed off on travellers in British New Guinea as eggs of the Red Bird-of-Paradise, which they do not in any way resemble.

Family ARTAMIDÆ—Swallow-Shrikes.

These birds, which closely resemble Swallows in their mode of life, are represented by one species only, *Artamus leucopygialis*, a grey bird with the breast and rump white. It was common along the coast, and was generally seen either perched on some dead tree or skimming swiftly over the sands.

Family TIMELIIDÆ—*Babblers*.

We now come to the Timeline group of birds: of these we may mention two striking-looking species of *Eupetes*. One, *E. nigricrissus*, with the plumage slate-blue and the throat white, edged with black, was met with on the Mimika; the other, *E. pulcher*, was only seen further east on the Wataikwa River. It is very similar to the first-named, but has the crown and back rich chestnut, instead of slate. Both species are ground-birds and usually found in pairs; they are rather difficult to procure, as, when disturbed, they instantly conceal themselves among the trunks of the trees and vegetation. The Scimitar-Babblers were represented by the reddish-brown *Pomatorhinus isidori*.

Family CAMPOPHAGIDÆ—*Cuckoo-Shrikes*.

The Cuckoo-Shrikes are well represented in the collection, examples of no fewer than eleven species having been obtained. They belong to four genera and vary much in colour: the large *Graucalus caeruleo-grisea* has the entire plumage bluish-grey, except the axillaries and under wing-coverts which are pale cinnamon, and the male has a black patch in front of the eye. Another genus, *Edolisoma*, is represented by *E. melan*, of which the male is entirely black, and the female chestnut and brown. A very attractive and brilliantly coloured species is *Campochæra stoletii*, forming a marked contrast to other members of the group. The greater part of its plumage is orange-yellow, the forehead white, the middle of the crown yellow, and the wings black and white; the male has the cheeks, throat, and chest black glossed with dull green, while in the female these parts are dull grey. Several examples of this very rare Cuckoo-Shrike were procured on the Mimika River. It is no doubt most nearly allied to the Minivets (*Pericrocotus*), which inhabit the Indo-Chinese countries and islands, the predominant colour of most of the males being scarlet and that of the females yellow.

Family MUSCICAPIDÆ—*Flycatchers.*

Flycatchers are very numerously represented, and among them two new forms were discovered, a Fan-tailed Flycatcher (*Rhipidura streptophora*) [O.-Grant, Bull. B. O. C. xxix. p. 25 (1911)] and a broad-billed species, *Myiagra mimikæ* (O.-Grant, *ibid.* p. 26). Among the more notable forms we may mention *Monarcha aruensis*, a brilliant yellow and black species; *Todopsis bonapartei*, the male being vivid ultramarine-blue, purple, and black, while the female differs in having the back and sides dark chestnut and the breast mostly white; lastly, *Peltops blainvillci*, a black bird with the rump, vent, and tail-coverts scarlet, a large white patch on each side of the head and another on the middle of the mantle; the sexes are alike in plumage.

The Fan-tailed Flycatchers were commonly seen on the Mimika River in May and June, when numbers were busy hawking the canary-coloured May-flies which swarmed at that time.

The Black-and-White Flycatcher (*Malurus alboscapulatus*) frequented the tall grasses near the camp on the Wataikwa River. It was a delightful little bird, very tame, and might constantly be seen crossing the open spaces with an undulating flight.

Family HIRUNDINIDÆ—*Swallows.*

Two species of Swallows were met with, *Hirundo javanica* and *H. gutturalis*.

Family PITIIDÆ—*Pittas or Ant-Thrushes.*

Of the Ant-Thrushes or Pittas two species were obtained, both brilliantly plumaged birds. *Pitta mackloti*, which was far the commoner of the two, has a dark crown, reddish-chestnut nape, and greenish-blue upper-parts; the throat is black, the chest shining greyish-blue, and the breast and belly scarlet, divided from the chest by a wide black band.

The other species, *Pitta novæ-guinææ*, which was much less frequently met with, has the head and neck black and the rest of the plumage dark green washed with bluish on the breast, which is black down the middle. The shoulders are shining silvery-blue and the vent and under tail-coverts scarlet.

These long-legged Thrush-like birds are entirely terrestrial in their habits and frequent the depths of the forests. They can hop with great agility, and escape on the slightest alarm, but are easily taken in snares.

Family CUCULIDÆ—Cuckoos.

Among the Cuckoos, the largest is a species of "Crow-Pheasant" or "Lark-heeled" Cuckoo, *Centropus menebiki*, a bird of black plumage glossed with dark green, with a large whitish-horn bill and heavy slate-coloured legs and toes.

An allied, but smaller and rarer species, *C. bernsteini*, was met with near the mouth of the Mimika. It is very similar in plumage but is easily distinguished by its smaller size, black bill, and long, nearly straight hind-claw. Both are almost entirely ground-birds of skulking habits. Several other species of Cuckoo were met with, and among these *Cuculus micropterus*, the eastern form of the Common Cuckoo, closely resembling our familiar bird. The rarest species obtained was *Microdynamis parva*, a remarkable little Cuckoo about the size of a Thrush, first described by Count Salvadori in 1875. The origin of the type specimen is uncertain, but it is believed to have been obtained by Beccari in the Moluccas. Subsequently, Dr. H. O. Forbes procured female examples in the Astrolabe Mountains. Mr. Claude Grant obtained an adult male and female which form a valuable addition to the National Collection. The general plumage is brown, but in the male the top of the head and the malar stripe are black, glossed with steel-blue, and the cheeks and throat are cinnamon. In both sexes the bill is short, thick, and curved. The male has the eye bright red, while in the female it is hazel.

Family CYPSELIDÆ—Swifts.

The Swifts, though of especial interest, are not very numerously represented in the collection. The commonest species was that known as the Esculent Swiftlet (*Collocalia fuciphaga*), which produces the best kind of edible nest.

A very interesting discovery was the existence in New Guinea of the large fork-tailed species, *Collocalia whiteheadi*, originally described by myself from the highlands of Luzon, Philippine Islands.

A remarkable Spine-tailed Swift (*Chatura novæ-guineæ*) is new to the National Collection. It was fairly common on the Mimika River, and originally described by Count Salvadori from specimens procured by D'Albertis on the Fly River.

A pair of the magnificent Moustached Swift (*Macropteryx mystacea*), with a wing-expanse of more than two feet, was also procured. The plumage of this bird is mostly grey, but the crown, wings, and long deeply-forked tail are black glossed with purplish-blue. The eye-brows and moustache-stripes as well as the scapulars are white, the two former being composed of lengthened, narrow, pointed plumes. The male has a small chestnut spot behind the ear-coverts which is absent in the female. The nesting-habits of this species are very curious; it makes a very small exposed half-saucer-shaped nest of bark and feathers gummed by saliva to a branch or stump which is barely large enough to contain the single white egg, and ridiculously small in comparison with the size of the bird. When incubating, the greater part of the bird's body must rest on the branch to which the nest is attached.

Families CAPRIMULGIDÆ and PODARGIDÆ—

Nightjars and Frog-mouths.

The common Nightjar of the country found along the shingly banks of the rivers was *Caprimulgus macrurus*, a widely distributed species. After the ground had been

cleared for the base-camp at Wakatimi it was visited every evening by a number of Nightjars, which no doubt found such a large open space an admirable hunting-ground, and the members of the Expedition derived great pleasure from watching their graceful evolutions. Another very rare Nightjar was *Lyncornis papuensis*, not previously included in the National Collection. Frog-mouths were represented by the larger species, *Podargus papuensis*, and the smaller, *P. ocellatus*. At some of the stopping-places on the river night was made hideous by their mournful cries, repeated to distraction on every side, and ending up with a sharp snap.

A single example of the rare Wallace's Owlet-Nightjar (*Egotheles wallacei*) was collected by Mr. G. C. Shortridge on the Wataikwa River. It has a peculiar uniform blackish upper plumage, without any trace of a distinct nuchal collar. No doubt, like its Australian ally, it roosts in holes in trees during the daytime and captures its prey on the wing at night, like the true Nightjars, though the flight is said to be less tortuous.

Family BUCEROTIDÆ—*Hornbills*.

The only representative of the Bucerotidæ is the Wreathed Hornbill (*Rhytidoceros plicatus*), a large bird with a casque formed of overlapping plates on the base of the upper mandible. The male is black with the head and neck chestnut and the tail white, while the female differs in having the head and neck black. It was plentiful everywhere, and its flesh was reported to be good eating. It frequented the fruit-bearing trees in company with various species of Pigeons, and Mr. Claude Grant on one or two occasions observed pairs at what he took to be their nesting-holes high up in the bare trunks of very tall trees. Their heavy noisy flight and raucous call, continually repeated, render these birds difficult to overlook.

Family MEROPIDÆ—*Bee-eaters*.

A species of Bee-eater, *Merops ornata*, was common about the base-camp. It ranges to Australia, the Moluccas, and

westwards to the Lesser Sunda group. Mr. Goodfellow says it swarmed in some places after the month of April, though previous to that date none had been met with,

Family CORACIIDÆ—Rollers.

Two species of Rollers inhabit the Mimika district, *Eury-stomus crassirostris*, a greenish-blue species with brilliant ultramarine throat, quills, and tail-feathers and vermilion bill and feet; and a smaller species, *E. australis*, with brownish-green upper-parts, verditer-blue breast, and bluish-green bases to the tail-feathers.

Both Bee-eaters and Rollers were common in flocks along the banks of the Mimika during April and May. They were preying on the canary-coloured May-fly, which swarmed on the waters at that season.

Family ALCEDINIDÆ—Kingfishers.

Kingfishers were well represented in the Mimika district, and Mr. Goodfellow says that the Sacred Kingfisher (*Halcyon sanctus*) was undoubtedly the most conspicuous bird about the base-camp, where its harsh cry could be heard all through the hot hours of the day. The huts and store-houses were infested by myriads of black crickets, which take the place of the cockroaches found in other countries, and commit fearful havoc among stores and personal possessions. The constant packing up of goods to send up the river drove thousands of these insects to seek shelter in other parts of the camp, and, at such times, Kingfishers became very tame and darted in and out among the buildings, taking advantage of the feast thus afforded. Mr. Claude Grant shot a single specimen of the lovely Kingfisher *H. nigrocyanea*, the only one obtained. It has the crown, wings, upper tail-coverts, tail, and breast dark ultramarine blue, the rump cobalt-blue, the throat and a band across the breast pure white, and the remainder of the plumage black. Another species met with at the base-camp was *H. macleayi*, with purple head, wings, and tail, verditer-blue back, white lores, collar, and under-parts, and cinnamon

flanks. Only one example of this fine bird was procured. Others were the dark purplish-blue and chestnut *Alcyon lessoni*, about the size of our Common Kingfisher, and the much smaller *A. pusilla* similarly coloured above, but with the under-parts pure white.

Ceyx solitaria, a closely allied species, with purple spangled upper-parts and cinnamon-yellow under-parts was also found on the Mimika, and Mr. Goodfellow was surprised to find this diminutive species, which he had believed to be exclusively a fish-eater, greedily devouring a canary-coloured May-fly which swarmed on the waters of the Mimika during April and May.

On the river a few specimens of the large "Jackass" Kingfisher (*Dacelo intermedia*) were obtained, but the species was by no means common. The most conspicuous bird was Gaudichaud's Kingfisher (*Sauromarptis gaudichaudi*), and its loud grating call might be heard in all directions. The adult is a very handsome bird, the black of the upper-parts being relieved by the electric-blue tips to the wing-coverts and feathers of the lower back and rump, the wings and tail are washed with dull purplish-blue, the throat is white and extends in a buff collar round the neck, the under wing-coverts are buff and the breast and rest of the underparts deep chestnut. The natives brought numbers of the half-fledged young of this species to the base-camp during May and June, and many were purchased by the Javanese soldiers and convicts; but as they fed them on boiled rice only, their lives were brief. The great Shoe-billed Kingfisher (*Clytoceyx*) was not met with by the members of our Expedition, but Dr. Van Oort has described a new form, which he calls *Clytoceyx rex imperator*, from a specimen procured by Dr. Lorentz on the Noord River. Another large species, *Melidora macrorhina*, with a curious brown spotted plumage above, was not uncommon; it usually frequented the lower branches and undergrowth within a few feet of the ground, and when disturbed merely mounted to a more conspicuous perch.

The lovely Racquet-tailed species of the genus *Tanysiptera* were not procured, though Dr. H. A. Lorentz met with a specimen on the Noord River.

FAMILIES PSITTACIDÆ and LORIIDÆ—
Parrots and Lories.

Another very numerous represented group is the Parrots, of which twenty-two different species were procured, varying in size from the Great Black Cockatoo (*Microglossus aterrimus*), which is about the size of a Raven and has an enormously powerful bill, to the tiny Pygmy Parrot (*Nasiterna keiensis*), which is about the size of a Golden-crested Wren. This latter species has recently been described by Mr. Walter Rothschild as new, under the name of *Nasiterna viridipectus* from specimens obtained by A. S. Meek in the Octakwa district, but they do not seem to differ from the birds found on the Kei and Aru Islands and also in the neighbourhood of the Fly River. The plumage is green, paler below, the crown dull orange, the shoulders spotted with black, the middle tail-feathers blue and the outer pairs black, with yellow and green tips. A few solitary Black Cockatoos might be seen on the lower river, sitting on the tops of the highest trees; their loud whistle always attracted attention, and even on their high perches their red faces and erect crests were conspicuous. The Common Cockatoo of the country was *Cacatua triton*, a moderate-sized species with a yellow crest, which was met with in small numbers throughout the mangrove-belt, but it was a shy bird and when approached always flew away, screaming. Lories of different kinds were numerous and included some of the most brilliantly coloured species, *Lorius erythrothorax* combining in its plumage black, crimson, scarlet, purple, blue, green, and bright yellow. The adult has the under wing-coverts uniform scarlet, in marked contrast to the bright yellow inner webs of the primary-quills; but in younger birds the smaller under wing-coverts are mottled with scarlet, blue, black, green, and

yellow, and the long outer series are yellow with greyish-black ends, making a dark band at the base of the quills. In this stage the bird has been described by Dr. A. B. Meyer as *Lorius salvadorii*.

A less brilliantly coloured and more common species in the neighbourhood of the Mimika was *Eos fuscatus*, which has the general colour above sooty-black shaded on the middle of the crown and neck with reddish-orange, and the under-parts widely banded with scarlet. A lovely species with a longer tail was *Trichoglossus cyanogrammus*, which is green with a blue face and greenish-yellow collar, and has the scarlet chest-feathers edged with purple, while the belly and flanks are yellow barred with green.

The tiniest Lory is *Loriculus meeki*, a minute species, about the size of a Blue Titmouse, with brilliant green plumage, orange-yellow forehead, and the rump and upper tail-coverts as well as a spot on the throat scarlet. The female differs in having the forehead and cheeks verditer-green.

The genus *Geoffroyus* is represented by two species: the commoner *G. aruensis* with the plumage green, the male having the crown and nape violet-blue and the rest of the head and neck scarlet, while in the female these parts are brown; also the much rarer *G. simplex*, which is entirely green with a dull lilac-blue ring round the neck. This latter is a very rare bird in collections, but was seen on the higher parts of the mountains above the Iwaka River in flocks of upwards of twenty individuals.

Other small and brilliantly coloured species of Lories are *Charmosynopsis pulchella* and *C. multistriata*, the latter a remarkable new species with green plumage and the whole of the under-parts streaked with bright yellow. It was recently described by Mr. Rothschild from a male shot by A. S. Meek on the Oetakwa River; a second specimen, a female, was obtained on the Mimika by Mr. Goodfellow. We must also mention *Chalcopsittacus scintillans*, *Hypocharmosyna placens*, *Charmosyna josephinae*, the rare *Glossopsittacus goldiei*, and three species of *Cyclopsittacus*, viz. *C. melanogenys*, which is green with a white throat, black cheeks, deep orange breast,

and ultramarine wings; *C. diophthalmus*; and *C. godmani* [O.-Grant. Bull. B. O. C. xxvii. p. 67 (1911)], a new and handsome species with the general colour green, the head and nape orange-scarlet, the upper mantle orange-yellow, the cheeks covered with long, pointed, yellowish feathers, and the chest verditer-blue.

Behind the camp at Wakatimi lay a swamp which, Mr. Goodfellow tells us, was every night the roosting-place of thousands of Lorics, chiefly *Eos fuscatu*s, and there were also smaller flocks of *Trichoglossus cyanogrammus*. Long before sunset and until it was quite dusk flocks of many hundred birds coming from all directions flew over with deafening noise. Often some weak branch would give way under their weight, causing a panic just as the noise was beginning to subside, and clouds of these birds would again circle around, seeking a fresh roosting-place and keeping up a continual din.

One of the most peculiar Parrots, and bearing a marked external resemblance to the Kea of New Zealand, is the Vulturine Parrot (*Dasyptilus pesqueti*), which has the black skin of the face almost entirely bare, the plumage black and scarlet on the wings, rump, and belly, the breast-feathers having pale sandy margins. Its hoarse, grating call, quite unlike that of any other species, could be heard a long way off, and was continually uttered when on the wing. Mr. Goodfellow says it usually moves about in parties of four or five individuals, and that occasionally as many as seven may be seen together. When not feeding they always select the tallest trees to rest in, preferring dead ones which tower above the general level of the jungle, and in which they remain for hours at a time in rain or sunshine. They do not climb after the usual manner of Parrots, but jump from branch to branch with a jerky movement, like the Lorics, and with a rapid flicking movement of the wings. They feed entirely on soft fruits, chiefly wild figs. Apparently the species feeds on the plains and retires to the mountains to roost, for every evening flocks or pairs were observed passing high over the camp at Parimau, and making their way towards the Saddle-peak range.

A handsome new Parroquet of the genus *Aprosmictus* was discovered, and has been named *A. wilhelminæ* [O.-Grant, Bull. B. O. C. xxvii. p. 83 (1911)], in honour of the Queen of Holland. The male has the head, neck, and underparts scarlet, the wings green, with a pale yellow-green band across the coverts, the mantle and back are mostly deep purplish-blue, and the tail black tinged with purplish.

Finally, the Eclectus Parrot (*Eclectus pectoralis*) was common. The remarkable difference in the coloration of the sexes might lead some to believe that they belonged to quite different species, the male being mostly green with scarlet sides and under wing-coverts, while the female is maroon, with the head, neck, and breast scarlet, and the mantle, belly, sides, and under wing-coverts blue.

Families BUBONIDÆ and STRIGIDÆ—

Wood-Owls and Barn-Owls.

The only Owl of which examples were obtained was a small species of Brown Hawk-Owl (*Ninox theomaca*), with the upper-parts, back, wings, and tail uniform dark brown, and the under-parts deep chestnut. It was a strictly nocturnal species, and confined to the jungle along the base of the mountains, where its weird double call "yon-yon" might constantly be heard after dark.

A form of the Barn-Owl (*Strix nova-hollandiæ*), which occurs in the district, was not obtained by the Expedition.

Family FALCONIDÆ—*Eagles and Hawks.*

New Guinea possesses a very remarkable Harpy-Eagle (*Harpyopsis nova-guineæ*) allied to the Harpy-Eagles of America and to the Great Monkey-eating Eagle (*Pitheco-phaga jefferyi*) which inhabits the forests of the Philippine Islands. The New Guinea bird is like a large Goshawk, having a long tail and comparatively short and rounded wings; the feet are armed with very powerful claws, but in strength and power it is far inferior to its great Philippine ally or to the still more powerful species inhabiting Central America. Mr. Claude Grant says that this species was

seldom met with; it has a rather loud cry and a beautiful soaring flight, often in ascending circles. Besides this large Eagle, two species of Goshawk, *Astur etorques* and *A. poliocephalus*, were met with, likewise a small chestnut and white Brahminy Kite (*Haliastur girrenera*). A small Sparrow-Hawk was obtained near the mouth of the Mimika River, but being in immature plumage its identification is at present uncertain. Reinwardt's Cuckoo-Falcon (*Baza reinwardti*), with a crested head and banded breast, was rather a rare bird, and appears to feed largely on insects.

Family PHALACROCORACIDÆ—Cormorants.

The small black-backed white-breasted species *Phalacrocorax melanoleucus* is the only representative of this group. Several specimens were shot on the upper waters of the Mimika, at Parimau, and at the base-camp at Wakatimi.

Family ANATIDÆ—Ducks.

The handsome white-necked Sheld-duck (*Tadorna radjah*) differs from the Australian form in being much darker on the back, the plumage being practically black with indistinct mottlings of dull rufous on the mantle. This dark form, found also in the Moluccas, was common about the mouth of the Mimika River. The more rufous-backed Australian form has been named *T. rufitergum* by Dr. Hartert.

The only other species of Duck brought home was an immature male Garganey (*Querquedula discors*) shot on the Kapare River.

Family IBIDIDÆ—Ibises.

The Eastern form of the Sacred Ibis (*Ibis stictipennis*) was met with at the mouth of the Mimika. It is easily distinguished from its western ally by having the innermost secondaries mottled with black and white.

Family ARDEIDÆ—Hérons.

Several different species of Hérons were procured, including the Night-Heron (*Nycticorax caledonica*), the

Yellow-necked Heron (*Dupetor flavicollis*), the White Heron (*Herodias timoriensis*), and a Tiger-Bittern (*Tigrisoma heliosylus*). The last-named is a very fine bird with the general colour above black boldly barred with rufous and buff, the under-parts buff barred on the neck and chest with black. The feathers on the neck and chest are very long and broad, and no doubt form a most imposing ruff when the bird is displaying.

Families EDICNEMIDÆ, CHARADRIIDÆ, and LARIDÆ—
Stone-Plovers, Plovers, and Gulls.

A number of small wading-birds were procured near the mouth of the river, and two species of Terns, but as all belong to well-known, widely distributed species, there is no special interest attaching to them. I may, however, mention that the great Australian Curlew (*Numenius cyanopus*) and the large Australian Thicknee (*Esacus magnirostris*) were among the species found at the mouth of the Mimika.

Family RALLIDÆ—*Rails.*

The only Rail met with was an example of *Rallina tricolor*, which has the head, neck, and chest bright chestnut, and the rest of the plumage dark brown with white bars on the wing-feathers. It also occurs in some of the Papuan Islands and in North-eastern Australia.

Family COLUMBIDÆ—*Pigeons.*

Pigeons were very numerous represented, no fewer than twenty-six different species being obtained by the Expedition. Some of the smaller forms are among the most beautifully coloured birds met with in New Guinea. The Crowned Pigeons (*Goura*) are represented by *G. sclateri*, which was fairly common near the base-camp and was met with in all places visited by the Expedition. In spite of the numbers shot for food during the whole time the Expedition remained in the country, the supply did not appear to diminish. This fine Pigeon and a few others afforded the

only fresh meat to be had. On the canoe-journeys up the river Selater's Goura was frequently met with in the early mornings in parties of two or three, searching for aquatic life along the muddy banks. When disturbed they did not immediately take flight, but with raised wings pirouetted around for a few seconds and then flew to the nearest high tree. Mr. Goodfellow found the remains of small crabs in their stomachs, and a large percentage of the birds shot were infested by a small red parasite, the same or similar to that which is known in other parts of New Guinea as "Scrub-itch."

Another very handsome bird is the Ground-Pigeon (*Otidiphaps nobilis*), with the head bluish-black, the nape dull metallic-green, the mantle and wings purplish-chestnut, and the rest of the plumage deep purple, all being more or less metallic. Its long legs and the upward carriage of its long tail give it much the appearance of a Bantam hen. It was fairly common, but being extremely shy was rarely met with.

Among the larger Fruit-Pigeons we must specially mention *Carpophaga pinon*, which has the general appearance of a large Wood-Pigeon. It was met with in large flocks and proved an excellent bird for the table. Another very striking species, of rather lesser proportions and very much rarer, was Müller's Fruit-Pigeon (*Carpophaga muelleri*), easily distinguished by its white throat, the bold black ring round its neck, and its shining chestnut mantle. Among the handsomest was *Carpophaga rufiventris*, a bird with the breast cinnamon and the wings and back metallic green, copper, and purple. Lastly, a very striking form was the large creamy-white Pigeon (*Myristicivora spilorrhoea*) with the flight-feathers, tips of the tail-feathers and under tail-coverts blackish. It appears to be entirely confined to the mangrove-swamps, and was observed breeding in May along the creeks near the mouth of the river, no less than seven nests being found in one tree.

As already stated, among the smaller Fruit-Pigeons many are very beautifully marked and brilliantly coloured, but

always with the most harmonious shades. It would seem as though Nature had almost exhausted her scheme of coloration in dealing with some of these birds; for we find two totally different species, *Ptilopus zonurus* and *P. gestroi*, occurring together in which the markings and colours of the plumage are almost identical; on the under-surface the two species are practically alike, both have the chin and throat pale lavender, extending in a ring round the neck, the fore-neck orange, the chest washed with vinous-brown, and the remainder of the under-parts green; on the upper-surface the top of the head and nape are greenish-yellow and the rest of the upper-parts green, but in *P. zonurus* the median wing-coverts are green with a subterminal spot of bright pink, while in *P. gestroi* the least wing-coverts are crimson and the next series grey fringed with greenish-yellow. Another parallel case of close resemblance is found between the small *Ptilopus nanus* and the larger *P. coronulatus*. Though really extremely distinct species the underparts are very similarly coloured, both being green with a bright magenta patch on the middle of the breast, and the belly and under tail-coverts mostly bright yellow: viewed from the upper surface the two birds are, however, very different, *P. coronulatus* having the crown lilac-pink, edged posteriorly with bands of crimson and yellow, while *P. nanus* has the head green, but the ends of the scapulars and secondaries are deep shining bluish-green, tipped with bright yellow. Even more brilliantly coloured species than those already mentioned are *Ptilopus pulchellus*, *P. superbus*, *P. aurantiifrons*, and *P. bellus*.

Near the camp at Wataikwa large flocks of D'Albertis' Pigeon (*Gymnophaps albertisii*) were observed coming in every evening from their feeding-grounds on the high mountains to roost on the plains below. Mr. Goodfellow tells us that their flight is extremely rapid and that their strange aerial evolutions remind one of the common "Tumbler" Pigeons.

The Long-tailed Cuckoo-Doves were represented by the

very large *Reinwardtænas griseotineta* and the smaller chestnut-plumaged *Macropygia griseinucha*; the former being a large and abnormally long-tailed bird with the head, mantle, and under-parts grey and the back and tail chestnut.

Family MEGAPODIIDÆ—*Megapodes* or *Mound-builders*.

The Game-birds are represented by three species of Mound-builders, two being Brush-Turkeys and the other a true Megapode (*Megapodius freycineti*). The fact that two closely allied species of Brush-Turkeys are found in the same district is of considerable interest. The common species of the country, *Talegallus fuscirostris*, has a very wide coastal range, being also found in South-eastern New Guinea and extending along the north coast to the middle of Geelvink Bay. The other species, *T. cuvieri*, is of western origin, being hitherto known from the Arfak Peninsula and the islands of Salwatti, Mysol, and Gilolo. Its occurrence on the Iwaka River was quite unexpected, and no doubt the ranges of the two species overlap in the neighbourhood of the Mimika in the south and in the vicinity of Rubi on Geelvink Bay in the north. In both the plumage is black, but *T. cuvieri* is a larger bird than *T. fuscirostris*, and is easily recognised by having the tibia feathered right down to the tibio-tarsal joint and the bill orange-red instead of sooty-brown.

All these species are of the greatest interest on account of their remarkable nesting-habits, and their nesting-mounds of decaying vegetable matter were conspicuous objects in the jungle. The eggs, which are very large for the size of the birds, are buried among the débris which the birds rake together into a large heap, the young being hatched, as in an incubator, by the warmth of the decaying leaves. The parent bird, after burying its eggs, takes no further notice of them, but the young on leaving the shell are fully feathered and able to fly and take care of themselves.

Family CASUARIIDÆ—Cassowaries.

The discovery made by Mr. Walter Goodfellow that two distinct forms of two-wattled Cassowary occur side by side on the Mimika River has greatly modified Mr. Rothschild's views on the classification of the genus, and he now finds that the ten forms possessing two wattles, when placed side by side, fall naturally into two groups, one consisting of the Common Cassowary (*Casuarus casuarus*), divisible into six subspecies or races, and the other of *C. bicarunculatus*, which may be divided in four subspecies. The large forms found on the Mimika are *C. sclateri* representing the first group and *C. intensus* representing the second. Both these birds have a large elevated casque or helmet, and differ chiefly in the pattern and coloration of the bare neck-wattles.

These Cassowaries were seen at various times searching for food in the pools and shallow waters of the riverbeds, and during the cross-country marches would sometimes dash across the trail, affording but a momentary glimpse.

The natives have distinct names for the male and female birds, and judging from the quantities of feathers in their possession must often succeed in capturing them. Eggs and newly-hatched chicks were brought in during January and February. On one occasion at Parimau some eggs must have been kept by the natives for a few days before they hatched, for young were brought to the camp which had evidently just emerged from the shells.

A very interesting discovery was made by Mr. Claude Grant on the foot-hills, where he met with a new dwarf species of Cassowary, *C. claudii* [O.-Grant, Bull. B. O. C. xxix. p. 25 (1911)]. It is allied to *C. papuanus*, but has the hind part of the crown and occiput black instead of white. Like that bird it has a low triangular casque, and belongs to a different section of the genus from the two larger species already mentioned.

C. claudii has very brilliantly coloured soft parts. The

occiput and sides of the head are entirely black; between the gape and the ear is a patch of deep plum-colour; the upper half of the back of the neck is electric-blue, shading into violet-blue on the sides and fore-part of the neck including the throat; the lower half of the back of the neck is orange-chrome, this colour extending down the upper margin of a bare magenta-coloured area situated on each side of the feathered part of the neck. This fine bird is now mounted and on exhibition in the Bird Gallery at the Natural History Museum.

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 VI.—*Commentary on the new 'Hand-list of British Birds.'*

By P. L. SCLATER, D.Sc., F.R.S.

IN the last page of 'The Ibis' for 1912 (p. 688), there was a notice of the publication of a new 'List of British Birds,' drawn up by four well-known ornithologists (Dr. Hartert, Mr. Jourdain, Mr. N. C. Ticehurst, and Mr. Witherby), and stated to be in exact accordance with the International